CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER

TECH transfer UPDATE

Vol. 4, No. 2 July 1999

Federal Laboratory Consortium Award Winners for Technology Transfer

In the past five years the Carderock Division has won the FLC Award four times. This year's award winners: Dr. Mark Spano and Dr. Visarath In were recently honored at an awards ceremony.

In 1984, the Federal Laboratory Consortium for Technology Transfer (FLC) established the FLC Awards for Excellence in Technology Transfer to recognize individuals within federal laboratories who have done outstanding work in transferring technology. The nominations are judged by a panel of experts in the field of technology transfer, and includes representatives from industry, state and local government, academia, and the federal laboratory system. The award is one of the most recognized in the field of technology transfer.

Application of Chaos Control

Drs. Mark Spano and Visarath In applied chaos control techniques, developed by Dr. Spano in the 1990s, to human biological systems - specifically cardiac fibrillation and epileptiform behavior in the brain.

Drs. Spano and In investigated controlling atrial fibrillation by altering and regulating the local electrical activation of the high right atrium of humans during atrial fibrillation--the most common arrhythmia that requires treatment intervention. In a parallel

Standing, left to right: Cynthia Gonsalves, ODDR&E (LM&TT); Dick Bloomquist, Director of Technology Transfer, NSWCCD; and Nancy Groves, ONR. FLC Award winners seated, left to right: Dr. Mark Spano and Dr. Visarath In, both of NSWCCD.

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FLC Awards for Excellence *(continued from page 1)*

effort, they also tried to regularize the electric spiking of the brain during epileptic seizures. In conjunction with the Georgia Institute of Technology and Emory University, the researchers began a course of experimental investigations that eventually led to the successful application of chaos control in these systems. Dr. Spano led his group in aggressively pursuing academic and commercial involvement in marketing applications of chaos control. Dr. Spano's promotion of his early ideas led to an innovative marketing agreement between the University of California at Los Angeles (UCLA) and the U.S. Navy. The license for the initial cardiac work is currently under the auspices of UCLA, which has in turn placed it under license to Medtronic, Inc. and Control Dynamics, Inc. -- both of which have paid the Navy royalties for the use of these intellectual properties.

These techniques are currently being applied to ventricular fibrillation--a severe heart dysfunction that is the leading killer of adults in the United States. If this work is as successful as the group's previous work a significant number of human lives could be saved.

Exhibit Schedule for 1999

Visit the Carderock Division Exhibit on the following dates in 1999. For more information on these conferences and the exhibit program, please call Geraldine Yarnall, Outreach Manager at (301) 227-1439.

1. 1999 Ship Production Symposium
   Crystal City Hyatt Hotel
   29-30 July 1999

2. Marine Corps League
   Quantico Marine Corps Base
   Quantico, VA
   21-23 September 1999

3. International Maritime Exposition (SNAME)
   Baltimore Convention Center
   Baltimore, MD
   30 September - 1 October 1999

4. Sixth Fleet Maintenance Symposium 1999
   Virginia, Beach Pavilion
   Virginia Beach, VA
   26-27 October 1999

5. Defense Manufacturing Conference 1999
   Miami, FL
   29 November. - 2 Decembe 1999

Working for Private Parties

The Carderock Division of the Naval Surface Warfare Center (NSWCCD) is a unique resource for the private sector. We support the maritime industry by providing a combination of world-class facilities and technical experts to assist in developing new technologies or products. We have been conducting fundamental research and developing technical concepts; building initial models, simulations and prototypes; and providing hardware and operational systems for over 100 years. We recognize that sharing our past lessons learned with industry will serve as a catalyst for future innovation. We are the leaders in naval engineering and maritime technologies and welcome an opportunity to share our unique capabilities.

How to Use Our Services

Any prospective customer may contact our technical experts directly and discuss contemplated work. Many technical points of contact can be found on our web site, www.dt.navy.mil. However, if you do not have a technical point of contact for your anticipated effort, please call Mr. Dick Bloomquist, at 301-227-4299 or e-mail to bloomquistdl@nswccd.navy.mil.

In a Work For Private Party Agreement the prospective partner submits a work description and requests a proposal from the Carderock Division. A series of technical discussions usually precede an RFP to obtain an understanding of the technical scope, specific requirements, time schedule, role of each partner in the work agreement, and the capability of the Division to deliver specific items. Our response is a proposal that addresses both cost and time estimates and may include, if the partner desires, information on fixed price, delivery schedules, etc. The partner here is really our customer. Our customer specifies how data are to be taken and analyzed. The data produced by a Work For Private Party Agreement may be proprietary subject to the customer's requirements. The proposal submitted to our potential customer also includes an Indemnity Agreement . For convenience, the Indemnity Agr eement Form is included on our web site so it can be filled-in on-line.

Top Ten Major Customers --
FY99 (To Date)

- Newport News Shipbuilding
- Ingalls Shipbuilding
- Avondale Industries
- Bath Iron Works
- General Dynamics Land Div.
- Electric Boat Corp.
- Exxon Corp.
- Lockheed Martin
- Nichols Research
- Northrup Gruman

New Patents with Commercial Potential

5,858,460	Metal Matrices Reinforced with Silver-Coated Boron Carbide Particles	William Ferrando Amarnath Divecha James Kerr
5,858,801	Patterning Antibodies on a Surface	Robert Brizzolara
5,859,535	System for Determining Size and Location of Defects In Material by Use of Microwave Radiation	John M. Liu
5,872,318	Method and Apparatus for Inducing Fully-Reversed Three-dimensional Loading on a Non-Rotating Beam	Michael Troffer William Appleman Joseph Korczynski
5,885,007	Adjustable Bearing System with Selectively Optimized Installation Clearances	Gus Plangetis
5,887,858	Passive-Active Mount (for machinery and equipment)	Jen Houne Hannsen Su

Point of Contact for Patent Licensing is:
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Small Business Innovation Research

The Small Business Innovation Research (SBIR) Program helps businesses conduct high-technology research meeting government needs, while spurring the flow of new technology to commercial markets. Directed by the U.S. Small Business Administration's (SBA) Office of Technology, but operated individually by various agencies, this is the only such federal program for new or existing small businesses.

SBIR is one of the few ways to find risk capital without strings attached. Open to all small businesses, it offers a level playing field with awards based on technical and commercial merit. To gain access to the funding of the SBIR program, the small business must write a proposal that will be reviewed by experts in the field. The proposal competes with other small businesses. Once selected, the small business must perform the work. This isn't a loan — if the research doesn't work out, there is no requirement for repayment. It's also not a venture capital investment in the traditional sense. The business does not give up any ownership in the company. SBIR provides approximately $1 billion annually to small businesses, more than ten times the funding provided by institutional venture capital organizations to small technology firms.

NSWCCD recently awarded the following SBIR contracts with small businesses covering a range of technology areas.

Topic No.	Title	Firm
N99-018	Formulation of Underwater Coating for Hull Touch-Up Repair	Foster-Miller, Inc.
N99-018	Formulation of Underwater Coating for Hull Touch-Up Repair	TDA Research, Inc.
N99-024	Nondestructive Evaluation of Composite Core Structures	Trilion Quality Systems LLC
N99-024	Nondestructive Evaluation of Composite Core Structures	Materials Sciences Corp.
N99-040	Expedient Foam Technologies for Marine Corps Operations	Polymer Labs.
N99-087	Development of Improved Non-Skid Coating	Creare, Inc.
N99-093	Electroconducting Non-Toxic Alternative Fouling Control Coatings/Systems	Bridger-OET, Inc.
N99-095	An Augmented-Gas-Turbine Engine	Fern Engineering, Inc.
N99-096	Low Cost Protruded Polyurethane Composite Deck Stanchions	KaZaK Composites
N99-097	Affordable NDM (Non-Distribution Media) Vacuum Assisted Resin Transfer Molding (VARTM) Processing for Large Naval Structures	Sunrez Corporation
N99-097	Affordable NDM (Non-Distribution Media) Vacuum Assisted Resin Transfer Molding (VARTM) Processing for Large Naval Structures	WebCore Tech, Inc.
N99-098	Mechanical Holders for Advanced Sliding Electric Contacts	DPD, Inc.
N99-117	Linear Motor Technology in the Vertical Plane	Magne Motion
N99-117	Linear Motor Technology in the Vertical Plane	EMF Technology, Inc.
N99-117	Linear Motor Technology in the Vertical Plane	Power Superconductor
N99-136	Development of Low-Cost, Composite, Isogrid Support Structures for Large-Scale Naval Applications of Superconductivity	Foster-Miller, Inc.
N99-136	Development of Low-Cost, Composite, Isogrid Support Structures for Large-Scale Naval Applications of Superconductivity	Cryogenic Materials, Inc.
BMDO 99-002	Kinetic Energy Kill Vehicles and Components	Castle Tech Corp.

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BMDO 99-002	Kinetic Energy Kill Vehicles and Components	Castle Tech Corp.
BMDO 99-006	Propulsion and Logistics Systems	Hi-Z Technology, Inc.
BMDO 99-006	Propulsion and Logistics Systems	Ceramic Corp.
BMDO99-013	Structural Materials and Composites	XC Associates, Inc.
BMDO 99-013	Structural Materials and Composites	Engineered Ceramics, Inc.

Small businesses seeking to get involved with the SBIR program may respond to the current DoD program solicitation 99.2. This solicitation for proposals in specific topic areas has a closing date of 11 Aug 1999. The DoD SBIR/STTR Home Page (http://www.acq.osd.mil/sadbu/sbir) offers electronic access to the SBIR solicitation information. Questions may be directed to the DoD SBIR/STTR Help Desk from 8 am to 8 pm eastern time at 1-800-832-4634.

There are three phases in the SBIR program. The first two phases work to show the feasibility of the concept and whether a working prototype can be created. The third phase is aimed at commercializing the technology.

The objective of Phase I is to demonstrate the technical merit and feasibility of the proposed research, and demonstrate the performance capabilities of the small business. Phase I lasts six months with a maximum funding level of $100,000. At least two thirds of the award must be spent within the small business.

Available only to Phase I winners, Phase II continues the research effort through prototype development. The maximum funding level is $750,000 over a two-year period. Awards are based on the result of the Phase I activities, the technical merit of the proposal and the commercial potential of the technology. At least half of the Phase II award must be spent within the small business.

Phase III is for commercializing the technology without SBIR funding. The cost of taking a product to market is not covered by the SBIR program. The government itself may become a Phase III customer using non-SBIR contracts to acquire products or services. Under the DoD enhancement option, companies may receive enhanced Phase II awards if they have an outside commitment of Phase III funding.

The U.S. Small Business Administration and many state economic development agencies have programs that help small businesses to prepare and compete for SBIR awards. Utilizing these resources can make a significant difference in the success factor for an award. Details on the Navy /DoD SBIR program can be found on the internet at http://www.navysbir.com.

An example of a very recent SBIR contract is Touchstone Research Laboratory, Ltd. of Tridelphia, West Virginia, which was recently awarded a Phase I SBIR by the Carderock Division, NSWC. Touchstone had the support of state economic development agencies, and using intellectual property from West Virginia University, is developing an innovative, coal-based material which has demonstrated excellent thermal, mechanical, and fire-resistant properties. This carbon foam material makes cutting edge use of a very 'low tech' resource. The cooperation of the state of West Virginia was very important to Touchstone's success in receiving an SBIR contract.

The SBIR program offers the opportunity to demonstrate the capability of a company. Credibility attained through participation in the SBIR program can help to attract financing, strategic partners or other government contracts. For additional information on the Carderock SBIR program please contact James Wood, at woodje@nswccd.navy.mil.

CARDEROCK DIVISION
NAVAL SURFACE WARFARE CENTER
NSWC

http://www.dt.navy.mil

Technology Partnerships
Is the Carderock Division a Part of Your Business Plan?

The Carderock Division has in place several processes or mechanisms to help businessmen develop a technology or product, and bring it to market. These processes are available at all levels ranging from research to test and evaluation and manufacturing technology. They directly support our congressionally mandated mission to support the Nation's maritime industry as well as the technology transfer statutes. This work is generally complimentary to our Navy and DoD work and is intended to provide unique benefits to the private businesses, consortia and universities. Why not make Carderock a part of your business plan?

For further information, please use our internet address: www.dt.navy.mil, or contact the Technology Transfer Office. The phone numbers and e-mail addresses are shown on this page.

The Technology Transfer processes include:

- ✔ Work for Private Party Agreements
- ✔ Cooperative R&D Agreements
- ✔ Patent License Agreements
- ✔ SBIR Contracts
- ✔ Potential Navy Contractor Program

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July 1999, Volume 4, Number 2
Tech Transfer Update (ISSN 1084-6557) is the publication of the Office of Research and Technology Applications, Code 0117.

Tech Transfer Update is published in accordance with NAVSO-P35. Articles appearing in the *Tech Transfer Update* may be summaries and news briefs from CDNSWC's publications. Manuscripts submitted for publication, correspondence concerning prospective articles, and changes of address should be directed to Carderock Division, Naval Surface Warfare Center, Office of Research & Technology Applications, Code 0117, 9500 MacArthur Blvd., West Bethesda, Maryland 20817-5700.

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